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## An online credential repository for the Grid: MyProxy

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This paper appears in: [High Performance Distributed Computing, 2001. Proceedings. International Symposium on](#)

Publication Date: 2001

On page(s): 104-111

Meeting Date: 08/07/2001 - 08/09/2001

Location: San Francisco, CA, USA

ISBN: 0-7695-1296-8

References Cited: 16

INSPEC Accession Number: 7062653

Digital Object Identifier: 10.1109/HPDC.2001.945181

Current Version Published: 2002-08-07

### Abstract

Grid portals, based on standard Web technologies, are increasingly used to provide user i computational and data grids. However, such Grid portals do not integrate cleanly with exi systems such as the Grid Security Infrastructure (GSI), due to lack of delegation capability mechanisms. We solve this problem using an online credentials repository system, called allows Grid portals to use the GSI to interact with Grid resources in a standard, secure ma the requirements of Grid portals, give an overview of the GSI, and demonstrate how MyPr function together. The architecture and security of the MyProxy system are described in d

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#### Author Keywords

Not Available

#### Medical Subject Heading (MeSH Terms)

Not Available

### References

No references available on IEEE Xplore.

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*Proceedings of the IEEE*  
On page(s): 644-652, Volume: 93, Issue: 3, March 2005  
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- 2 A Grid Portal for an Undergraduate Parallel Programming Course, Tourino, J.; Martin, Arenaz, M.  
*Education, IEEE Transactions on*  
On page(s): 391- 399, Volume: 48, Issue: 3, Aug. 2005  
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- 3 A National Human Neuroimaging Collaboratory Enabled by the Biomedical Informatics (BIRN), Keator, D.B.; Grethe, J.S.; Marcus, D.; Ozyurt, B.; Gadde, S.; Murphy, S.; Piep Notestine, R.; Bockholt, H.J.; Papadopoulos, P.  
*Information Technology in Biomedicine, IEEE Transactions on*  
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A National-Scale Authentication Infrastructure - ► [udc.es](#) [PDF]

R Butler, DE Von Welch, I Foster, S Tuecke, J ... - COMPUTER, 2000 - doi.ieeeecomputersociety.org

... browser to provide the tag and **pass phrase** to the ... Users can present their GSI **credentials** for authentication ... more complicated, such as the **wrappers** around the ...

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An Online **Credential** Repository for the Grid: MyProxy - ► [globus.org](#) [PDF]

J Novotny, S Tuecke, V Welch - Proceedings of the Tenth International Symposium on High ..., 2001 - doi.ieeeecomputersociety.org

... **credentials**. ... at SDSC uses Perl CGI scripts[14] that simply **wrap** the myproxy ... **get-delegation** program with the appropriate user identity and **pass phrase** passed ...

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TJ Hudson, EA Young - 1997 - di.unito.it

... PEM format of the **key** with a **pass phrase** using DES ... the standard certificate exchange) their Unix **credentials** including their ... eg SunOS 5.x), a **wrapper** to perform ...

Cited by 4 - Related articles - Cached - Web Search

Assignment of user certificates/private keys in token enabled public **key** infrastructure system

KW Aull, TC Kerr, WE Freeman, MA Bellmore - US Patent App. 10/027,622, 2001 - Google Patents

... review of data against **credentials** Certificate authority ... effort to determine the **passphrase** required to ... 132, create a certificate, **wrap/encrypt** the certificate ...

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[PDF] ► [Stackable File Systems as a Security Tool](#)

E Zadok - Columbia University CS TechReport CUCS-036-99, Dec, 1999 - am-utils.org

... **able wrapper** file system. ... up file, but using the ownership and group **credentials** of the ... ID as the process that originally received the user's **passphrase**. ...

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Apoptosis the Programmed Death of Distributed Services - ► [uu.se](#) [PS]

C Tschudin - LECTURE NOTES IN COMPUTER SCIENCE, 1999 - Springer

... service may depend on a continuous stream of **credentials**. ... The **pass-phrase** is hashed using the MD5 digest ... **encrypted** and emitted inside the "**wrapper**" code as ...

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Method and apparatus for a web-based application service model for **security** management

WB Sweet, JJ Yu - US Patent App. 09/930,029, 2001 - Google Patents

... **Permission Credentials** Information Contained in **Encrypted Object Transmit Security** Profile Over the Network 615 Generate Cryptographic Working **Key** Transmit ...

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M Kaminsky - 2000 - pdos.lcs.mit.edu

... The **passphrase** allows the user to safely store an ... user access remote files with different **credentials**—for instance as ... **ssu** is a **wrapper** around the setuid Unix ...



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J Novotny, S Tuecke, V Welch - Proceedings of the Tenth International Symposium on High ..., 2001 - doi.ieeeecomputersociety.org

... allow HTTP connections secured with SSL encryption (HTTPS ... captured **pass phrase**, the compromised **pass phrase** could be ... to constantly decrypt the portal key can be ...

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A National-Scale Authentication Infrastructure - ► [udc.es](#) [PDF]

R Butler, DE Von Welch, I Foster, S Tuecke, J ... - COMPUTER, 2000 - doi.ieeeecomputersociety.org

... 68.4, with one distinction: We use **SSL** rather than a ... to provide the tag and **pass phrase** to the ... SSH supports multiple mechanisms—Kerberos, RSA key pairs, and ...

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[HTML] ► **SSLeay Programmer Reference**

TJ Hudson, EA Young - 1997 - di.unito.it

... format of the **key** with a **pass phrase** using DES ... a **password** and can then return the **key** any number ..., pushed STREAMS module that provides transparent **SSL** support for ...

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The Grid Portal Development Kit - ► [cogkit.org](#) [PDF]

J Novotny ... - Concurrency and Computation: Practice and Experience, 2002 - doi.wiley.com

... implemented over the Secure Sockets Layer (**SSL**) and is ... One of the **key** difficulties in developing a portal ... enter the same user name and **pass phrase** from their ...

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[PDF] ► **XML Key Management Specification (XKMS)**

P Hallam-Baker, S Author - W3C Note, March, 2001 - verisign.com

... 26 3.3.4 <ProcessInfo> 27 3.3.5 <PassPhrase> 27 ... 28 3.3.9 Faults 29 4 **Key** Registration **Service** Protocol Overview 30 4.1 Linkage to an Underlying PKI 30 ...

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Assignment of user certificates/private keys in token enabled public **key** infrastructure system

KW Aull, TC Kerr, WE Freeman, MA Bellmore - US Patent App. 10/027.622, 2001 - Google Patents

... and with some effort to determine the **passphrase** required to ... to create a Secure Socket Layer (**SSL**) session between ... the certificate in a public **key** and decrypt ...

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[PDF] ► **Flexible Key Management with SFS Agents**

M Kaminsky - 2000 - pdos.lcs.mit.edu

... and applies it to the web and **SSL** [FKK96 ... The **passphrase** allows the user to safely store an encrypted ... and certification programs as tools for doing **key** management ...

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Method and apparatus for a web-based application **service** model for security management

WB Sweet, JJ Yu - US Patent App. 09/930,029, 2001 - Google Patents

... AND APPARATUS FOR A WEB-BASED APPLICATION **SERVICE** MODEL FOR ... values, a file header encrypting **key**, the mem- ber's access permissions **credentials**, and domain ...

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[ps] ► [A use-condition centered approach to authenticated global capabilities: Security architectures for ...](#)

W Johnston, C Larsen - 1996 - [www-itg.lbl.gov](#)

... and the Secure Sockets Layer [SSL] to provide ... **credential** databases (institutional/ group / individual server ... Identity certificates (Public-key Infrastructure) ...

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[book] [Network Security with OpenSSL](#)

J Viegas, M Messier, P Chandra - 2002 - [books.google.com](#)

... is kept secret from those without the proper **credentials**, even if ... As a result, most systems that use public key cryptography, **SSL** included, use it ...

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[PDF] ► [Peer-to-peer solutions in the Semantic Web context: An overview](#)

R Siebes - EU-IST Project IST-2001-34103 SWAP, Vrije Universiteit ..., 2002 - [swap.semanticweb.org](#)

... of a centralized server that could be a bottleneck in CPU or **storage** capacity and ...

WSDL is a **key** part of the effort of the Universal Description, Discovery and ...

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[PDF] ► [Dynamic Parameterization of IPsec](#)

CD Agar, NAVAL POSTGRADUATE SCHOOL MONTEREY CA - 2001 - [cissr.nps.edu](#)

... 183 9. Secure Dissemination & **Storage** of QoSs ... Association and Key Management Protocol

(ISAKMP). ... system unifies the elements of security policy, **credentials**, ...

Cited by 2 - Related articles - View as HTML - Web Search - Library Search - All 5 versions

[book] [Hack proofing your network](#)

R Russell - 2002 - [books.google.com](#)

... Can Be Evaded Secret Cryptographic Algorithms Are Not Secure If a **Key** Is Not ... The

Digital Millennium Copyright Act includes a **provision** designed to prevent the ...

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[PDF] ► [REGISTRATION AND AUTHENTICATION PROTOCOL FOR OCEAN:\(OPEN COMPUTATION EXCHANGE AND AUCTIONING NETWORK ...](#)

N Chawla - 2002 - [cise.uffi.edu](#)

... 3.1 **Key** Agreement Protocols.....26 ... I have also modified an existing **key** ...

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[The Use of Firewalls in an Academic Environment-](#) ► [soton.ac.uk](#) [PDF]

T Chown, D DeRoure, J Read - 2000 - [eprints.ecs.soton.ac.uk](#)

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Jon Read David DeRoure Department of Electronics and Computer ...

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[Current security issues faced by health care establishments and resulting requirements for a secure ...](#)

B Blobel, B Baum-Waidner - Implementing Secure Health Telematics Applications in Europe ..., 2001 - [books.google.com](#)

... to a security problem we mean that **key** escrow or **key** recovery can ... In centralised information systems logical recording, processing and **storage** of information ...

Cited by 3 - Related articles - Web Search - BL Direct - All 2 versions

[Method and system for transcribing electronic affirmations](#)

CPK Smithles, JM Newman, B Wright - US Patent 6,091,835, 2000 - [Google Patents](#)

... such as that the affirming party: i) is in fact the identified party; ii) understands

that by entering affirming data, eg a password, **key**, biometric sample or ...

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[PDF] ► [of Deliverable Deliverable D05](#)

C Baert, T Hecht, R Kuron, C Petersen - Convergence, 1996 - [citeseerx.ist.psu.edu](#)

... only for data transmission, but also for data **storage**. ... As a result secure **key** handling



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... 35 S/MIME 40 Passwords and **Passphrases** 42 Seeding ... kept secret from those without the proper **credentials**, even if ... only thing that needs to be secret is the **key**. ...

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[PDF] ► **Application portals: practice and experience**

M Thomas, M Dahan, K Mueller, S Mock, C Mills, R ... - Concurrency and Computation: Practice and Experience, 2002 - svn.globus.org

... system: at login, a valid username and **passphrase** will result ... by SSL using a 56- or 128- bit **key**. ... user has presented the portal with this **credential**, the user ...

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[PDF] ► **Network security with OpenSSL**

P Chandra, M Messier, J Viega - 2002 - infosecurl.org.cn

... secret from those without the proper **credentials**, even if ... to see garbled data that is essentially "**locked**," but they ... thing that needs to be secret is the **key**. ...

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[PDF] ► **REPORT DOCUMENTATION PAGE Form Approved**

ML Smith - 2000 - citeseerx.ist.psu.edu

... **credential** issued by a trusted authority that individuals or organizations present to prove ... message encrypted with the private **key** can be decrypted with the ...

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[PDF] ► **Designing and Implementing Kiwi: A Secure Distributed File System over HTTPS**

A Che - Computer Science Department, Stanford University, 2001 - austinch.name

... 6 Nothing needed to be carried around, except maybe a **pass phrase** in one's head and a smart card in one's **wallet**. ... A **key** or **passphrase** must be obtained ...

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[book] **Secured Computing: A Cissp Study Guide**

CF Endorf - 2001 - books.google.com

... For example: An account that has been **locked-out** after ... Something You Know — A Password, **Pass Phrase**, or Personal ... Security problems occur, if a **key** is lost or ...

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[book] **True Names: And the Opening of the Cyberspace Frontier**

V Vinge - 2001 - books.google.com

... Namely, dig-ital money, anonymous e-mail, and all of the other issues connected with "strong cryptography" and "public key crypt-ology". ...

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[poc] ► **Certification Practice Statement**

V Versign - 1996 - ncsu.edu

... in two physical locations to protect against attacks on a single **credential** server ... The private **key** itself is stored in encrypted form on the Enterprise Roaming ...

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JC Desplat, J Hardy, M Antonioletti, J Nabrzyski, ... - ENACTS report, January, 2002 - [citeseerx.ist.psu.edu](#)

... data migration, replication, data **storage**, data transfer ...  
technologies.....139 III.3.7 **Key** features of ...

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